

## LOW COST BRAZES FOR TITANIUM

### ABSTRACT OF THE DISCLOSURE

**[056]** A braze material and method of brazing titanium metals. The material may consist of Ti, Ni, Cu Zr, PM and M where PM is a precious metal and M may be Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or combinations thereof, with the (Cu+PM)/Ni ratio around 0.9. Optionally, a second brazing may be performed to rebraze any braze joint that did not braze successfully. The second brazing material has a lower braze temperature than the first and may consist of a mixture of Ti, Ni, Cu, Zr PM and M with from 1-20 wt% more Zr, PM, M or combinations thereof than the first braze. The braze material may be placed on a base material, in a vacuum furnace, and heated to form a braze joint between the braze and base material. The heating step may occur from about 800-975 °C and over 3 to 15 minutes.